A Risk Screening Process for Demonstrating Chemical Stewardship in the E&P Industry
GOALS AND OBJECTIVES

- Reasons for Chemical Risk Screening
- Concept of Chemical Risk
- Concept of Chemical Stewardship
- Description of the Noble Energy Chemical Risk Prioritization Scoring Process
- Challenges
REASONS FOR CHEMICAL RISK SCREENING

- Potential Regulatory Drivers
- Demonstrates Chemical Stewardship
- Identifies Chemicals Requiring Further Risk Characterization and Management
- Identifies Chemicals Where No Additional Concern is Warranted
WHAT IS NOT IN THE SCOPE

- Target Certain Chemicals for Elimination
- Dictate What Chemicals Can be Used
- Provide Formal Human or Ecological Risk Assessments
CONCEPT OF CHEMICAL RISK

Chemical Risk = Hazard x Exposure

- Hazards Can Potentially Occur for Both Human and/or Ecological Receptors

- Exposures Can Potentially Occur to:
  - Humans
  - Ecological receptors, and
  - Throughout the life cycle of the chemical
CONCEPT OF CHEMICAL STEWARDSHIP

- Making EHS Protection an Integral Part of the Chemical Life Cycle
- Extends Beyond Regulatory Compliance
- A Continued Commitment to Assessing and Mitigating the Chemical-Related Risks
- Partnerships within the Company’s Drilling, Operations and Supply Chain Groups, as well as with Third Party Service Providers
CHEMICALS IDENTIFIED FOR RISK SCORING

1. Compile the List of Chemicals
2. Exclude Chemicals Based on Exclusion Criteria
3. List of Chemicals to be Evaluated for Human and Aquatic Hazard and Persistence/Bioaccumulation Scoring
4. List of Chemicals to be Evaluated for Exposure Scoring
CHEMICAL EXCLUSION CRITERION LIST

- Consumer Products and Office Supplies
- Generally Recognized as Safe (GRAS)
- Materials Intrinsically Derived from E&P
- Highly Controlled Chemicals Based on Existing Safety Plans, Low Volumes, or Limited Potential for Exposure
- Physical or Corrosive Hazards Only
CHEMICAL RISK SCORING

Hazard Score 1–3

Exposure Score 1–3

Persistence/Bioaccumulation Score 1–3

Chemical Score Calculation = Hazard + Exposure + Persistence/Bioaccumulation

7–9 = High
5–6 = Moderate
3–4 = Low

Potential Candidate for Information Gathering
EXPOSURE QUESTIONNAIRE

- Based on Annual Volume of Chemical Use
- Volume Potentially Released to Environment During Normal Use
- Number of Points Where the Product is Used
- Likelihood of Product Which Under Normal Use Has the Potential for:
  - Human Exposure
  - Ecological Exposure
CHALLENGES

- Product Level vs. Chemical Constituent Level Risk Scores
- Acceptable Data Sources
- Data Gaps
- Confidential Business Information
Questions?

Thank You!